

## CLAIMS

What is claimed is:

1. A method for refining a geometric description model of an object using an image of that object, the method comprising:
  - providing an image of the object;
  - providing a rough geometric description model of the object;
  - extracting sub-models from the rough geometric description model;
  - finding poses of the sub-models in the image; and
  - using the found sub-models to construct a refined geometric description model.
2. The method of claim 1, further including:
  - using constraints to further refine the refined model; and
  - refitting the further refined model to the found sub-model poses to provide a new pose of the further refined model.
3. The method of claim 2, wherein one of the constraints is an angular constraint.
4. The method of claim 1, wherein the model includes a wire frame structure.

5. The method of claim 4, wherein the wire frame structure includes vertices and segments connected thereto.
6. The method of claim 1, wherein the refined model for the object is required to satisfy certain user-defined geometric constraints.
7. The method of claim 6, wherein the geometric constraints specify that segments must form 90 degree angles at vertices.
8. The method of claim 1, wherein finding poses of the sub-models in the image includes:
  - validating the poses of the sub-models.
9. The method of claim 1, wherein providing a rough model of the object includes also providing a rough model pose.
10. A method for refining a geometric description model of an object using an image of that object, the method comprising:
  - providing an image of the object;
  - providing a rough geometric description model of the object; and
  - constructing a refined geometric description model using the image.